AN ALIEN FLATWORM IN AUSTRALIAN WATERS. *Memoirs of the Queensland Museum 38 (2):642. 1995:-* In the Botanical Gardens on Mount Coot-Tha, Brisbane are several ponds. One displays blue water lilies, *Nymphaea* spp., some of which are introduced. There, too, are small planarian flatworms (≤1.5cm long) with a triangular head with two white patches each containing a dark eye, and a yellowish brown body with numerous whitish spots.

Though this population appears exclusively asexual, external appearance is sufficient to identify *Girardia tigrina*, notorious for the ease with which it has recently extended its distributional range through accidental introductions. *G. tigrina* is a presumed native of North America; sexually reproducing animals found in Brazil and Uruguay are thought the result of human-aided immigration. In recent times *G. tigrina* has been introduced with aquarium plants into Europe (Dahm & Gourbault, 1978; Ribas et al., 1989) where it now occurs in natural water bodies. In Japan, this introduced species was initially found only in culture ponds and fish tanks, but a naturalised population has been recently reported from Nagasaki (Kawakatsu et al., 1993).

In Australia, unidentified, asexual specimens of *Girardia* sp. (possibly *G. tigrina*) have been reported from Victoria (Ball, 1974; Hay & Ball, 1979). Further indirect evidence for the occurrence of *G. tigrina* in Australia comes from a culture in Japan of Australian crayfish, *Cherax tenuimanus*, introduced from Western Australia in 1984. In 1985 an asexual population was present in the culture ponds (Tamura et al., 1985). It is probable that *Girardia* has already achieved quite a large distribution within Australia, most likely through introductions and unintentional transfer within the country.

Colonisation into new territories is facilitated by the species' capacity to readily reproduce by transverse fissioning; one animal can be the parent of an entire population. Several other planarian species have enlarged their distributional range as a result of human activities. The land planarian *Bipalium kewense*, originally confined to S.E. Asia, has been reported from hothouses worldwide, as it is easily transported in pots of soil with exotic plants. Another land planarian, *Artioposthia triangulata*, was introduced from New Zealand into Britain, and was reported in 1963 from gardens near Belfast (Ball & Reynoldson, 1981). Presently, the species has spread over Northern Ireland and Scotland, and its predatory activities have caused serious depletion of local earthworm populations (Ogren, 1995; Putnam, 1994).

Other freshwater planarians have extended their ranges by human-aided dispersal. For example, *Phagocata woodworthi* was introduced into Loch Ness attached to North American equipment used during searches for the "Loch Ness Monster" (Reynoldson et al., 1981). Introduction of *G. tigrina* into Australia could potentially threaten indigenous, but poorly studied, native planarians. *G. tigrina* feeds on small crustaceans, oligochaetes and gastropods by penetrating the body of its prey with its pharynx and sucking out the contents. In periods of lowered food supply they are able to shrink, calling on their body reserves. There are few known predators. Coupled with their powers of regeneration, this makes them formidably resistant. In continental Europe no ill effects of *G. tigrina* on the planarian fauna have been observed, but in Britain Reynoldson (1985) reported a rapid and drastic decline of two native planarian species after introduction of *G. tigrina* into an English coastal lake. According to Reynoldson, replacement of native planarians by *G. tigrina* probably results from interspecific competition for food. Australia has the greatest diversity and the most primitive representatives of the Dugesiidae to which *G. tigrina* belongs. It would be tragic to have our indigenous fauna fall prey to American invaders.

Australia has a long history of planned and unplanned exotic introductions. Arthington & Mitchell (1986) highlighted the need for inspection and quarantine, with regard to disease, of introduces aquatic plants and fish. Small worms such as *G. tigrina* are not pathogens, but merely passengers of plants and will produce no obvious damage. Hence, they may be easily overlooked and easily transported either with plants or with water associated with plants and animals. They are small, generalist predators with evidently wide tolerances, and, because they can reproduce through fission as well as sexually, the worms can spread in a manner similar to many plants. This will be particularly enhanced through inadvertent human intervention. All three components of invasion reported by Arthington and Mitchell; introduction, establishment and dispersal, are easy for *G. tigrina*. Hopefully, the opportunity may exist to limit the spread of this alien, and monitor both its spread and impact on the native fauna as was advocated in Britain (Ball & Reynoldson, 1981).

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